

## REMARKS

Claims 1, 4-28, 32-34 and 36-39 remain in the application, in which claims 7-14, 18-23, 32-34 and 36-39 have been withdrawn from consideration. Applicants respectfully request for allowance of claims 1, 4-28, 32-34 and 36-39.

### Rejections under 35 U.S.C. §103

Claims 1, 4-6, 15, 17, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.K. Patent No. GB 1,416,168 to Frankl (hereinafter referred to as “Frankl”). In addition, claims 16, 24, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frankl in view of U.S. Patent No. 6,536,271 to Gopalakrishanan et al. (hereinafter referred to as “Gopalakrishanan”) and U.S. Patent No. 6,648,606 to Sabini et al. (hereinafter referred to as “Sabini”).

Independent claim 1, as amended, is directed to a method of monitoring the condition of a pump, or a component of a system having a pump wherein the component is not a component of the pump, the method comprising the steps of: generating a predetermined test condition in the pump or system component comprising generating and sustaining for a substantial period of time an abnormal pump speed outside a range of normal pump operation speed whereby the pump or system component is subject to an increased stress as compared with normal operating stresses and further comprises causing a reduction in clearance between parts of the pump; and obtaining signals indicative of a condition of the pump or system during a period in which the test condition is present, the test condition occurring during a period in which the reduction in clearance between parts of the pump is present.

Frankl does not teach, suggest, or imply “*an abnormal pump speed outside a range of normal pump operation speed.*” Applicants acknowledge Examiner’s interpretation that subjecting a pump from a low speed to a high speed and immediately reversing the span can be an “abnormal load condition.” In order to clarify the ambiguity, the language “abnormal load condition” has been replaced with “an abnormal pump speed outside a range of normal pump operation speed.” Frankl is about measuring the hysteresis of governor at a particular speed, which is defined as the difference between a first position of control rod 13 at that speed when the speed is rising and a second position of control rod 13 at the same speed when the speed is falling. *See, col. 1, lines 21-26.* The speed selected to measure the hysteresis lies within prescribed limits. *See, col. 1, lines 16-20.* Prescribed limits imply a range of speed, in which a pump normally operates. It is true that Frankl does not specifically call this range of speed normal or abnormal. However, considering the totality of Frankl’s disclosure, this range of speed provides an operable scope, in which the hysteresis of governor can be measured, and there is no mentioning about pushing the pump speed outside this range. Since Frankl does not differentiate an abnormal pump speed from a range of normal pump operation speed, it would be reasonable to infer that Frankl does not concern pushing the pump speed beyond its normal range as the claimed invention does.

Moreover, Frankl does not teach, suggest, or imply “*generating and sustaining for a substantial period of time*” an abnormal pump speed outside a range of pump normal operation speed. “In use, a test consists of the pump speed being increased from an initial low value to a high value followed **immediately** by a reversal,” Frankl

describes on page 1, lines 83-87. This clearly differs from the claimed invention where the abnormal pump speed is sustained for a substantial period of time.

It would not have been obvious for a person skilled in the art at the time when the invention was made to modify Frankl to sustain the pump at a high and low speed for a substantial period of time. Frankl is about measuring the hysteresis of governor, which requires the pump 12 to be in acceleration or deceleration all the time, such that the differential of axial positions of the control rod 13 caused by acceleration and deceleration, respectively, at a given speed can be measured. Sustaining the pump speed for a substantial period of time would render the hysteresis of governor immeasurable.

As such, claim 1 is patentable over Frankl under 35 U.S.C. 103(a). Accordingly, claims 4-6, 15-17 and 24-28 that depend from claim 1 and include all limitations recited therein are not anticipated by Frankl under section 103, nor rendered obvious by Frankl in view of Gopalakrishanan and Sabini under section 103.

### **CONCLUSION**

Applicants have made an earnest attempt to place this application in an allowable form. In view of the foregoing remarks, it is respectfully submitted that the pending claims are drawn to a novel subject matter, patentably distinguishable over the prior art of record. Examiner is therefore, respectfully requested to reconsider and withdraw the outstanding rejections.

Applicant does not believe that any additional fee is due, but as a precaution, the Commissioner is hereby authorized to charge any additional fee to deposit account number 50-4244.

Should Examiner deem that any further clarification is desirable, Examiner is invited to telephone the undersigned at the below listed telephone number.

Respectfully submitted,

By: /Ting-Mao Chao, Reg. No. 60,126/  
Ting-Mao Chao  
Attorney for Applicant  
Registration No. 60,126

Edwards Vacuum, Inc.  
Legal Service – Intellectual Property  
2041 Mission College Blvd. Suite 260  
Santa Clara, CA 95054

TEL: 1-408-496-1177  
FAX: 1-408-496-1188

**Customer No.: 71134**